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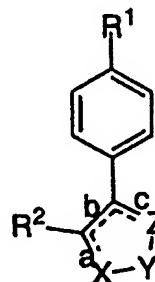
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵ : C07D 277/02, 275/02, 307/02, 333/04 A61K 31/33, C07C 305/18, 307/02		A3	(11) International Publication Number: WO 95/00501 (43) International Publication Date: 5 January 1995 (05.01.95)
(21) International Application Number: PCT/CA94/00318 (22) International Filing Date: 9 June 1994 (09.06.94) (30) Priority Data: 082,196 24 June 1993 (24.06.93) US 179,467 10 January 1994 (10.01.94) US (60) Parent Application or Grant (63) Related by Continuation US 179,467 (CIP) Filed on 10 January 1994 (10.01.94) (71) Applicant (for all designated States except US): MERCK FROSST CANADA INC. [CA/CA]; 16711 Trans-Canada Highway, Kirkland, Quebec H9H 3L1 (CA). (72) Inventors; and (75) Inventors/Applicants (for US only): DUCHARME, Yves [CA/CA]; 4501 Kensington, Montreal, Quebec H4B 2W6 (CA). GAUTHIER, Jacques, Yves [CA/CA]; Apartment 2, 540 Odette Oligny, Laval, Quebec H7N 5Z4 (CA). PRASIT, Petpiboon [CA/CA]; 177 Argyle Drive, Kirkland, Quebec H9H 5A6 (CA). LEBLANC, Yves [CA/CA]; 8 Lafford, Kirkland, Quebec H9J 3Y3 (CA). WANG, Zhaoyin			[CA/CA]; 13199 Edison Crescent, Pierrefonds, Quebec H8Z 1Y5 (CA). LEGER, Serge [CA/CA]; 51 Lamarche, Dollard des Ormeaux, Quebec H9B 3E5 (CA). THERIEN, Michel [CA/CA]; 944 21st Avenue, Laval, Quebec H7R 2R2 (CA). (74) Agent: MURPHY, Kevin, P.; Swabey, Ogilvy, Renault, Suite 800, 1001 de Maisonneuve Boulevard West, Montreal, Quebec H3A 3C8 (CA). (81) Designated States: AU, BB, BG, BR, BY, CA, CN, CZ, FI, GE, HU, JP, KE, KG, KR, KZ, LK, LV, MD, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SI, SK, TJ, TT, UA, US, UZ, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. (88) Date of publication of the international search report: 13 April 1995 (13.04.95)

(54) Title: PHENYL HETEROCYCLES AS CYCLOOXYGENASE-2 INHIBITORS

(57) Abstract

The invention encompasses the novel compound of formula (I) useful in the treatment of cyclooxygenase-2 mediated diseases. The invention also encompasses certain pharmaceutical compositions for treatment of cyclooxygenase-2 mediated diseases comprising compounds of formula (I).



(I)

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
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FR	France			VN	Viet Nam
GA	Gabon				

INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 94/00318

A. CLASSIFICATION OF SUBJECT MATTER

IPC 5 C07D277/02 C07D275/02 C07D307/02 C07D333/04 A61K31/33
C07C305/18 C07C307/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 C07D A61K C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO,A,91 19708 (FUJISAWA PHARMACEUTICAL CO.) 26 December 1991 see examples ---	1-33
E	WO,A,94 15932 (SEARLE & CO.) 21 July 1994	1-33
X	* see example 13 *	1-22, 24-33
X	* see scheme IV, compound 15, p. 32 ; see example 13, step 4 * ---	23
Y	EP,A,0 087 629 (DU PONT DE NEMOURS) 7 September 1983 see pages 13-14 see page 8; table I --- -/--	1-33

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- * "A" document defining the general state of the art which is not considered to be of particular relevance
- * "E" earlier document but published on or after the international filing date
- * "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- * "O" document referring to an oral disclosure, use, exhibition or other means
- * "P" document published prior to the international filing date but later than the priority date claimed

* "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

* "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

* "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

* "&" document member of the same patent family

Date of the actual completion of the international search

25 January 1995

Date of mailing of the international search report

07.03.95

Name and mailing address of the ISA

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Lauro, P

INTERNATIONAL SEARCH REPORT

International Application No

PCT/... 94/00318

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CHEMICAL ABSTRACTS, vol. 113, no. 21, 19 November 1990, Columbus, Ohio, US; abstract no. 184393m, page 33 ; & J. PHARMACOL. EXP. THER., vol.254, no.1, 1990 pages 180 - 187 GANS,K; GALBRAITH,W; ROMAN R. ET AL. 'Anti-inflammatory and safety profile of DuP 697, a novel orally effective prostaglandin synthesis inhibitor' * see abstract * ---	1-33
Y	EP,A,0 388 909 (FUJISAWA PHARMACEUTICAL CO.) 26 September 1990 see claim 1 see page 9 - page 11 -----	1-33

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA94/00318

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Please see attached sheet ./.

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/

iii) Incomplete search

In the light of the variety of (hetero)cyclic rings and the nature of their substituents, a meaningful search of the subject-matter of the claims 1-18, 27-33 could not be carried out (Article 17 (2)(a)(ii) PCT). The search has been limited to the examples, i.e. to the exemplified heterocyclic rings substituted with an additional phenyl ring or cyclohexyl adjacent to the sulfonyl-substituted phenyl.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/LA 94/00318

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO-A-9119708	26-12-91	AU-A-	7973191	07-01-92
		CN-A-	1059142	04-03-92
		EP-A-	0593761	27-04-94
		JP-T-	6501919	03-03-94

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US-A-	4820827	11-04-89		

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		CA-A-	2007133	05-07-90
		EP-A-	0377457	11-07-90
		JP-A-	3014569	23-01-91
		JP-A-	3027370	05-02-91
		US-A-	5145860	08-09-92
		US-A-	5217971	08-06-93
US-A-	5229386	20-07-93		
CA-A-	2012716	22-09-90		
